

THURSDAY, APRIL 30, 1885

THE FOSSIL MAMMALIA IN THE BRITISH MUSEUM

Catalogue of the Fossil Mammalia in the British Museum (Natural History). Part I., containing the Orders Primates, Chiroptera, Insectivora, Carnivora, and Rodentia. By Richard Lydekker, B.A., F.G.S., &c. (London: Printed by order of the Trustees, 1885).

IN the above-named volume we welcome another contribution to the series of descriptive catalogues of the Natural History Section of the British Museum, which, initiated by the late indefatigable Keeper of the Zoological Department, Dr. J. E. Gray, have been energetically extended under the direction of his eminent successor, Dr. Günther, himself the author of the greatest of them all, the now classical "Catalogue of Fishes."

Unlike that valuable work, however, and the subsequently published catalogues of Chiroptera, of Birds, and of Batrachia, the volume before us does not conceal, under the modest title of "Catalogue," a systematic treatise on the orders dealt with, for it includes even less than its title implies, dealing only, as a rule, with the specimens of fossil Mammalia exhibited in the Museum galleries. We regret that this is so; an excellent opportunity has been lost by the author of bringing out a monograph, complete to date, of all the species of fossil mammals known—a work urgently needed not only by the student of palæontology, but by biologists in general, whose successful study of existing animals depends so largely on their knowledge of extinct forms.

Although the subjects of this work belong as truly to the zoological series as any of the groups of animals treated of in the catalogues of the Zoological Department above referred to, yet, as their remains which form the material on which it is founded are conventionally termed "fossils," the volume is prefaced by the learned head of the Department of Geology, Dr. Henry Woodward. This is, no doubt, as it ought to be, for Dr. Woodward is not only a distinguished palæontologist but a zoologist also; but the circumstance points to the uncomfortable fact that the collections on which it is based occupy a part of the house different from that of their nearest relations—a condition which, however convenient for departmental reasons, is none the less to be deplored as contrary to the principles which should govern the arrangement of a collection intended for instruction, and misleading to the general non-scientific visitor, who is necessarily led by such an arrangement to regard the animals, whose remains are presented thus to his view, as creatures of a parentage altogether distinct from that of existing species. We are confident that our opinions on this subject are shared by the able director of the Museum, whose arrangement of the specimens in the Hunterian Collection of the Royal College of Surgeons was based on the natural, as opposed to the artificial, system, such as we see adopted at South Kensington, which, however, existed there before his appointment, and which, no doubt, is still forced upon him by circumstances not under his control.

The Keeper of the Department of Geology is fortunate
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in having obtained for the preparation of this catalogue the services of one so competent to deal with the subject as Mr. Lydekker, whose valuable palæontological papers, published chiefly in the Memoirs of the Geological Survey of India, are so well known, and who appears to have brought to the study of the collection a mind unbiassed by theories of a bygone period of natural history, save in a few points which we shall presently point out, in which we trust he may have yielded rather to the respect due to the opinions of a former master of this science than to his own convictions.

The author premises (in the Introduction) that he has endeavoured, as far as possible, to follow in the lines laid down by Prof. W. H. Flower (in his "Catalogue of Specimens of Vertebrated Animals in the Museum of the Royal College of Surgeons," Part II., 1884) in respect to the nomenclature of species and genera and in regard to general systematic arrangement, and his wisdom in following such an excellent model is much to be commended. Unfortunately, however, the proviso "as far as possible" seems to have opened the way to some considerable exceptions to this good rule, which prove to be serious blemishes in a work otherwise well carried out. We can see no good reason why the simple plan of printing references in the body of the page, employed in all hitherto published descriptive catalogues of the Natural History Department, should have been abandoned in the volume before us in favour of a complicated system of foot-notes which disfigure the pages and causes the unlucky reader to keep his eyes perpetually on the move. Thus (to cite one of many instances), under the genus *Machærodus* we find arranged, in a narrow line down one side of the page, six synonyms, each provided with a minute number referring to a certain similarly numbered foot-note at the bottom of the page, in which, when found, the required reference may be made out. This trouble could have been spared the reader by simply printing the reference after the synonyms, and much space would also have been saved. But worse than this is the absence of even footnote references to synonyms, such as we notice in many places, as, for instance, under "*Hyæna striata*," where eleven synonyms with the names of their authors only, are arranged in a dismal line down the left side of the page.

Although the fossil remains are, in most cases, very carefully described, yet we regret to find but few definitions in detail of the families, genera, or species; for although definitions of still existing genera and species might possibly be omitted or much abridged, it is surely inadvisable in a descriptive catalogue to omit or abridge those of any of the truly fossil forms, however well they may be known to professed palæontologists. The author is occasionally unfortunate even in his short definitions, as, for instance, where he defines the genus *Crossopus* as having "teeth nearly the same in number as in *Sorex*, but different in colour," whereas this genus is really distinguished by having teeth nearly the same in colour as *Sorex*, but different in number (one premolar less on each side above). The expression "nearly the same in number" is curious in a scientific work. Under this genus we notice that *C. remifer*, which we considered had been long ago recognised as a synonym of *C. fodiens*, is given position as a distinct species, and, wonderful to

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relate, it owes its recognition as such to two rami of the mandible!

We were at first puzzled by the numbers applied to certain premolars in the author's description of the dentition of some fossil species belonging to still existing genera, until the following paragraph in the Introduction was noticed:—"In enumerating the teeth of the typical heterodont Eutherian mammals, each tooth of the cheek series is referred to its proper position in the complete series, the first premolar always meaning the first tooth in the typical series of four, and so with the succeeding teeth." Mr. Lydekker has therefore resuscitated what we had thought was long defunct—namely, the Owenian system of expressing the homology of the teeth by imagining a fixed mode of reduction for a typical number of 44, of which the premolars, for instance, when reduced in number, are supposed to become so by symmetrical loss from before backwards; so that when, for example, two upper premolars alone remain, these must be considered to be the third and fourth. It is, however, an incontrovertible fact that in many species of mammals it is the third premolar in the upper jaw that is wanting, that further reduction is accomplished by the loss of the second, and, lastly, of the first premolar, the fourth premolar of the original series alone remaining, this tooth very rarely disappearing also. In the lower jaw of certain species with three premolars the second premolar is the first to disappear, so that here the same difficulty exists. Were the mandible of such a species to become fossil, the two remaining premolars would, by the Owenian system, be recognised as the third and fourth, whereas they would really be either the second and fourth or the first and fourth. Indeed Prof. Owen himself notices ("Anat. Vertebr.," iii. p. 374) that "in some instances the first premolar remains of small size when p. 2 and p. 3 are lost;" and Prof. Flower, commenting on the theory of reduction advanced by Prof. Owen, remarks ("Encycl. Brit.," xv. p. 353) that "if this were invariably so, the labours of those who describe teeth would be greatly simplified; but there are unfortunately so many exceptions that a close scrutiny into the situation, relations, and development of a tooth may be required before its nature can be determined, and in some cases the evidence at our disposal is scarcely sufficient for the purpose."

Space will not admit of entering upon a criticism of the geological horizons adopted, which, so far as the Tertiaries of Europe are concerned, have been slightly modified by the author from the tables given by Gaudry, Boyd Dawkins, and Max Schlosser. We note, however, with satisfaction that he has rejected the prevalent notions as to the position of the Siwalik and Pikermi beds, referring the ossiferous strata of the former to the Upper and that of the latter to the Lower Pliocene—a view, if we mistake not, urged for some time past by Mr. W. T. Blanford. We could wish for a special note on the position of the Caylux and Quercy phosphorites of Central France, referred to the Upper Eocene; for the highly specialised character of the mammalian remains from these deposits appear to throw much doubt on their supposed age.

Where there is much to blame there is also much to praise: the descriptions appear to be in most cases excellent and carefully worked out, the subjects chosen for

illustration well selected, and the woodcuts (thirty-three) well executed. We hope that this volume and the next (which will probably include the remaining species of fossil Mammalia represented in the collection) will together form but a "Prodromus" to a catalogue of fossil Mammalia by the same author, which, while equalling in comprehensiveness the best of the hitherto published catalogues issued by the Trustees of the British Museum, shall, however, surpass all of them in accuracy of description and in the number and excellence of its illustrations.

THE SELF-INSTRUCTOR IN NAVIGATION

The Self-Instructor in Navigation and Nautical Astronomy for the Local Marine Board Examinations and for Use at Sea. With numerous Examples, Illustrations, Diagrams, and Charts. By W. H. Rosser. New and Thoroughly Revised Edition. (London: Imray and Sons, 1885.)

BOOKS of this character have presumably their use; and this particular one is neither worse nor better than many others which owe their being to the necessities of the examination room rather than to the wants of the practical navigator. Its table of contents is framed according to the schedule of the Board of Trade; and though it is spoken of in the preface as "adapted for use at sea," Mr. Rosser has proved in other books that he knows it can be so considered only as an indirect compliment to the Board of Trade Examinations, which have been carefully devised so as to call for the greatest possible amount of cram and the smallest possible amount of real knowledge. The "Self-Instructor" has run through many editions, and no doubt answers the purpose of the author sufficiently well: it is, he says, essentially practical and not theoretical; though he omits to say that practical is to be understood as referring to what is wanted for the examination, and that theoretical refers to any reasoning or intelligent mode of working. It is not Mr. Rosser's fault that the examination is laid down on such clumsy and really unpractical lines; and what he has professed to do he has done fairly well: though it would be as well to expunge from future editions the symbol given on p. 2, for the "observed distance between the sun's near limb and the moon's far limb"; more especially if the symbol is to be used, as on p. 304, for a distance observed to the moon's near limb.

As a little matter of history, it may be remarked that the statement on p. 364, that the method of determining the latitude by the altitudes of two stars on the same hour-circle was originally given by Mr. Bolt in the *Nautical Magazine* for 1874, is not quite accurate. Mr. Bolt, in the article referred to, makes no claim of originality, but merely says that the problem may be new to many even expert calculators. In point of fact, the method suggested itself to, and was taught and practised by, the writer of this notice in 1859, and was introduced by him into the examination papers of the Royal Naval College in 1866; since which time it has been repeatedly set as a theoretical question. In reality, it ought only to be so considered; for though it gives very good results, and the observation is by no means a delicate one, a rough approximation to the interval of time being quite